

Renee Weber, Jan. 28 Geology & Geophysics Dept. seminar, Yale University

Planetary Seismology

Of the many geophysical means that can be used to probe a planet's interior, seismology remains the most direct. In addition to Earth, seismometers have been installed on Venus, Mars, and the Moon. Given that the seismic data gathered on the Moon (now over 40 years ago) revolutionized our understanding of the Moon and are still being used today to produce new insight into the state of the lunar interior, it is no wonder that many future missions, both real and conceptual, plan to take seismometers to other planets. To best facilitate the return of high-quality data from these instruments, as well as to further our understanding of the dynamic processes that modify a planet's interior, various modeling approaches are used to quantify parameters such as the amount and distribution of seismicity, tidal deformation, and seismic structure of the terrestrial planets. In addition, recent advances in wavefield modeling have permitted a renewed look at seismic energy transmission and the effects of attenuation and scattering, as well as the presence and effect of a core, on recorded seismograms. In this talk I will discuss some of these methods and review the history of planetary seismology.